

March 4 to March 10, 2012 (Week 10)

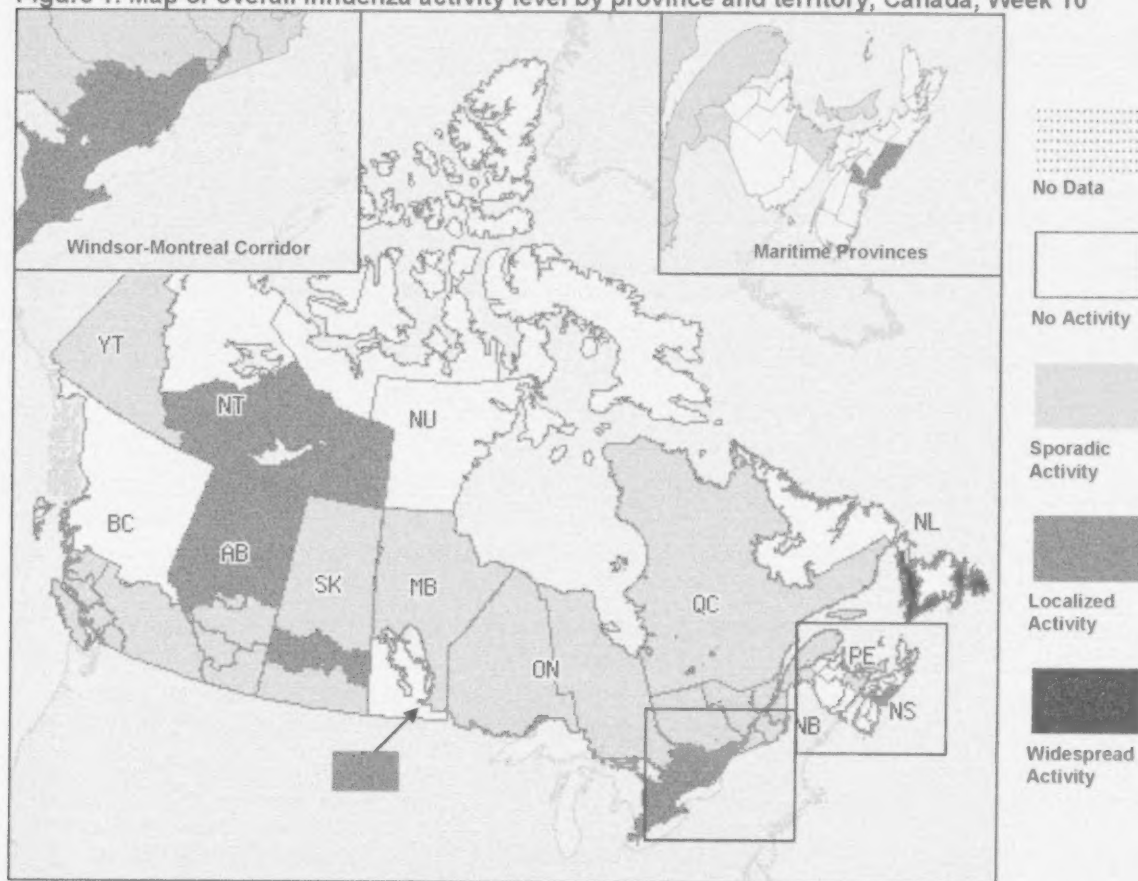
## Overall Influenza Summary

- Overall influenza activity in Canada continued to increase in week 10 compared to previous weeks; all provinces and most territories (except Nunavut) reported either sporadic, localized or widespread influenza activity in at least one region this week
- Thirty-one outbreaks of influenza or ILI were reported this week (21 in LTCFs, 2 in hospitals, 1 in a school and 7 others).
- In week 10, 1,080 laboratory detections of influenza were reported (10.8% - A(H3); 8.4% - A(H1N1)pdm09; 29.1% - unsubtype and 51.7% influenza B)
- The percent positive for influenza B detections continued to increase and has surpassed the percent positive for influenza A detections; the majority of influenza B detections (89%) this week were from Ontario and Quebec
- 93 influenza-associated hospitalizations were reported this week (47 paediatric and 46 adult)
- The national ILI consultation rate was similar compared to the previous week and remains within expected levels for this time of year

## Influenza Activity (geographic spread) and Outbreaks

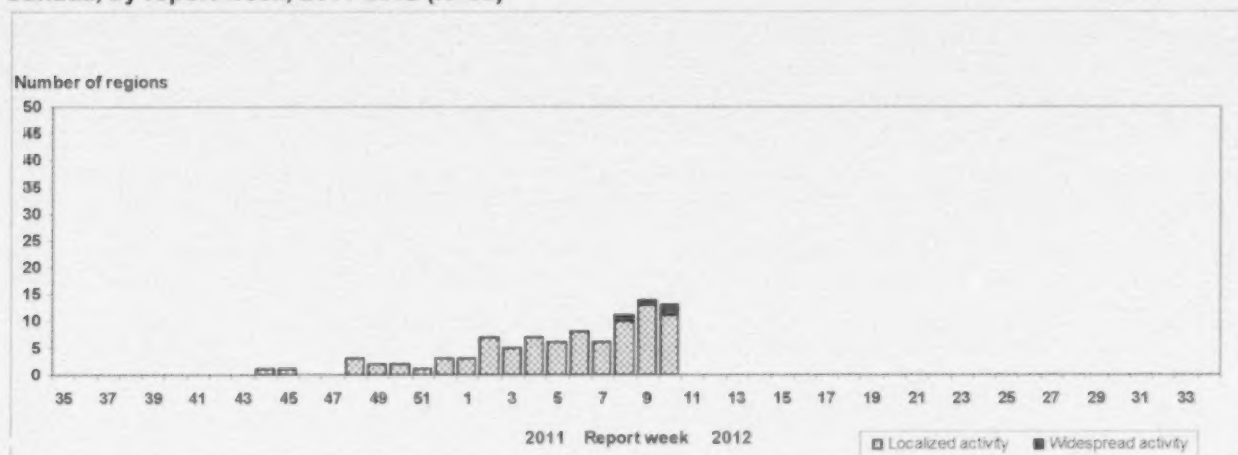
In week 10, 2 regions reported widespread influenza activity (NL), 11 surveillance regions (within AB, SK, MB, ON, QC, NS & NT) reported localized activity and 22 regions (within most provinces and territories except in NS, NL, NT & NU) reported sporadic influenza activity (see Figure 1). Thirty-one outbreaks of influenza or ILI were reported this week: 21 in long-term care facilities (1 in SK, 2 in MB, 15 in ON, 2 in QC & 1 in YT), 2 in hospitals (in QC), 1 in a school (in AB) and 7 others (in ON) (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 10



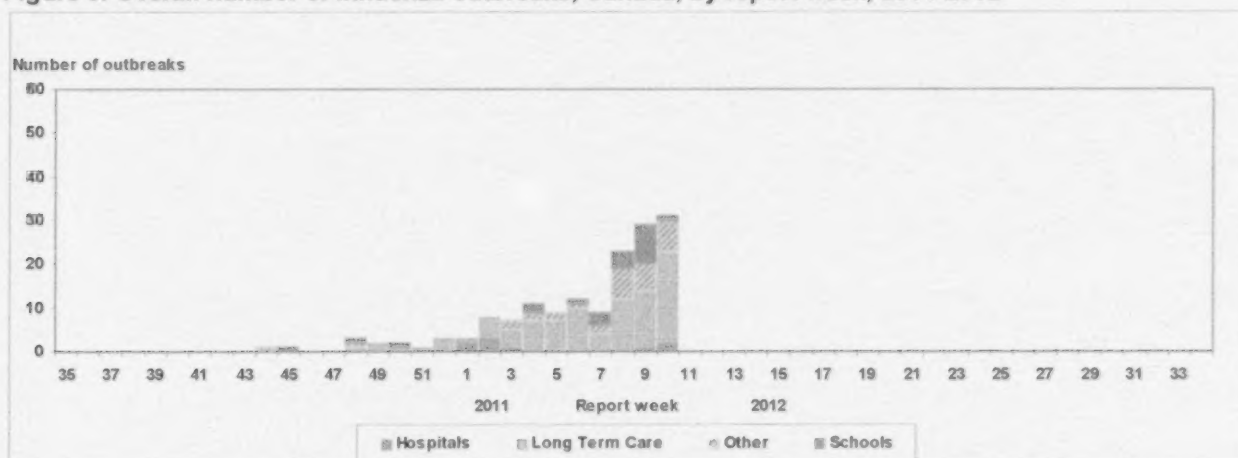
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

**Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2011-2012 (N=56)**



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

**Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2011-2012**



## Influenza and Other Respiratory Virus Detections

The proportion of positive influenza tests continued to increase and was 21.1% (1,080/5,107) for week 10 (Figure 4 & 5). For the first time since November 2010, the weekly proportion of positive detections for influenza B (51.7% or 558/1,080 in week 10) surpassed the proportion positive for influenza A (48.3% or 522/1,080 in week 10). To date this season, the provinces with the highest proportion of influenza B detections compared to influenza A detections include: ON, QC & the Atlantic provinces.

Cumulative to date of influenza virus detections by type/subtype is as follows: 59.7% influenza A (45.1% - A(H3); 17.2% - A(H1N1)pdm09; 37.8% - untyped) and 40.3% influenza B (Table 1).

Detailed information on age and type/subtype were received on 3,486 cases to date this season (Table 2). The proportions of cases by age group are as follows: 21.3% were < 5 years; 17.8% were between 5-19 years; 24.8% were between 20-44 years; 14.8% were between 45-64 years of age; 21.3% were ≥ 65 years; and 0.03% with age unknown. The largest proportion of influenza A cases were between 20-44 years of age (29%), those ≥ 65 years of age (23%) and those < 5 years of age (20%). The largest proportion of influenza B cases were under 20 years of age (52%).

In week 10, the proportion of tests positive for RSV continued to decline (to 14.5%) and has been surpassed by the proportion positive for influenza. Percent positives for RSV in week 10 have declined compared to the previous week in most regions across Canada except in the Atlantic Region. The percentage positive for the other respiratory viruses declined or remained fairly similar compared to the previous week (parainfluenza-1.0%; adenovirus-1.6%; human metapneumovirus-5.2%; rhinovirus-5.3%; and coronavirus-4.3%) (Figure 5). For more details, see the weekly [Respiratory Virus Detections in Canada Report](#).

**Table 1. Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2011-2012**

Reporting provinces	March 4 to March 10, 2012						Cumulative (August 28, 2011 to March 10, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	34	0	17	14	3	11	388	0	341	40	7	47
AB	85	0	49	9	27	8	535	0	432	60	43	46
SK	45	0	23	6	16	1	308	0	222	19	67	2
MB	10	0	4	1	5	5	19	0	8	1	10	10
ON	104	0	16	48	40	288	453	0	114	243	96	837
QC	219	0	5	6	208	207	800	0	21	63	716	639
NB	20	0	3	7	10	4	30	0	6	10	14	8
NS	0	0	0	0	0	13	2	0	0	0	2	18
PE	0	0	0	0	0	3	1	0	1	0	0	7
NL	5	0	0	0	5	18	12	0	4	1	7	108
Canada	522	0	117	91	314	558	2548	0	1149	437	962	1722

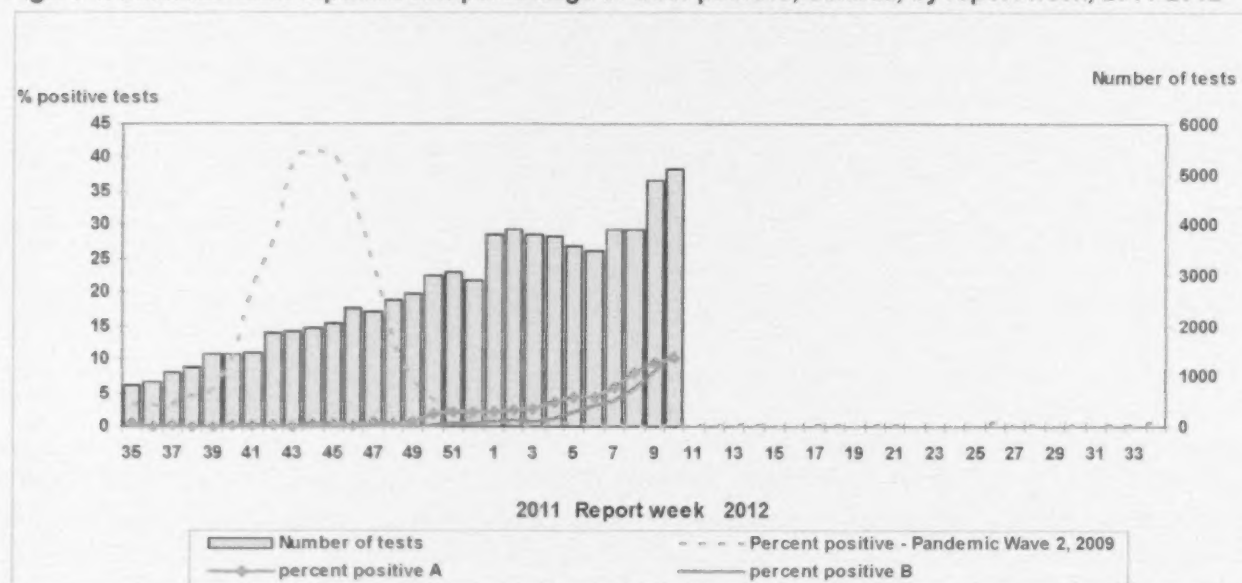
\*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

**Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2011-2012\***

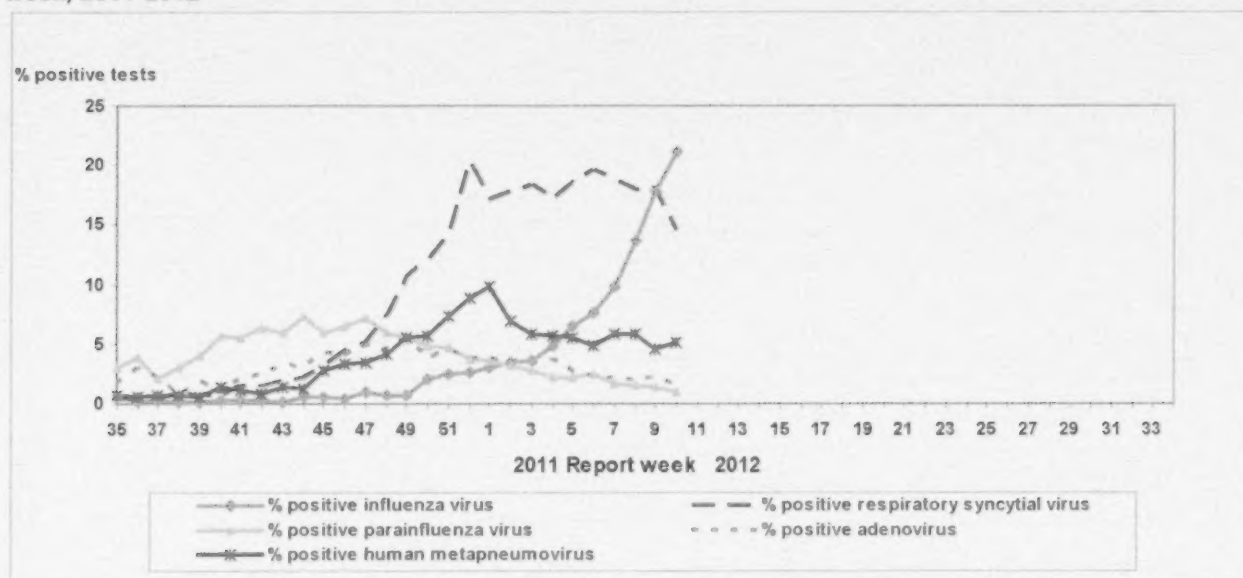
Age groups	Weekly (Mar. 4 to Mar. 10, 2012)					Cumulative (Aug. 28, 2011 to Mar. 10, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	58	6	7	45	52	434	88	175	171	307
5-19	21	1	5	15	59	243	22	150	71	377
20-44	78	7	4	67	51	621	107	254	260	242
45-64	45	7	2	36	39	381	65	141	175	136
65+	41	3	12	26	89	493	32	333	128	251
Unknown	2	1	1	0	0	1	0	0	1	0
Total	245	25	31	189	290	2173	314	1053	806	1313

\*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

**Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2011-2012**



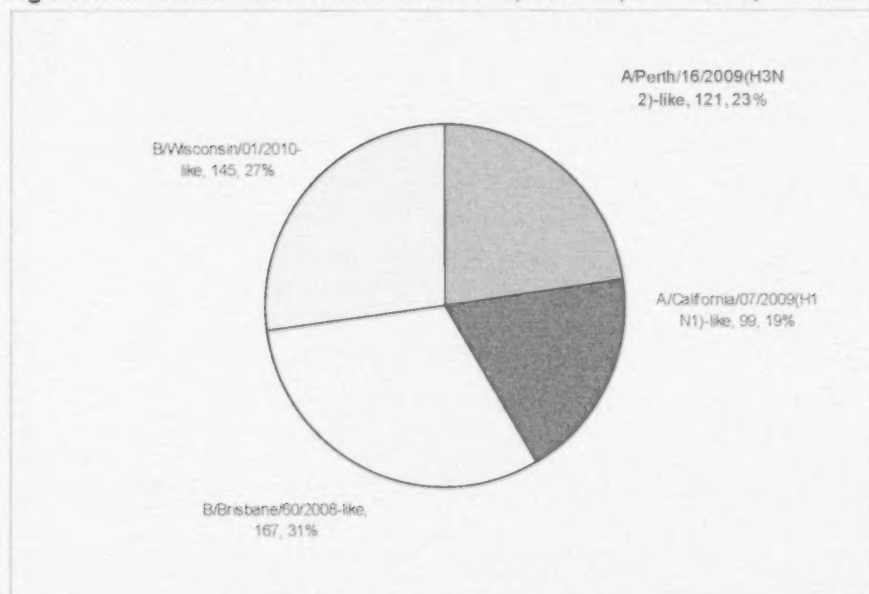
**Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2011-2012**



## Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 532 influenza viruses (121 A/H3N2, 99 A/H1N1 and 312 B). Of the 121 A/H3N2 viruses (from BC, AB, SK, ON & QC), 113 (93.4%) were antigenically similar to A/Perth/16/2009 while 8 (6.6%) viruses showed reduced titers with antiserum produced against A/Perth/16/2009. Of the 99 A/H1N1 viruses characterized (from BC, AB, SK, ON, QC & NB), 98 (99.0%) were antigenically similar to A/California/07/2009 and 1 (1.0%) virus tested showed reduced titer with antiserum produced against A/California/07/2009. Of the 312 influenza B viruses characterized, 167 (53.5%) (from BC, AB, SK, ON, QC, NB & NL) were antigenically similar to the vaccine strain B/Brisbane/60/2008 (Victoria lineage); however 1 virus out of the 167 tested showed reduced titer with antiserum produced against B/Brisbane/60/2008. The remaining 145 (46.5%) influenza B viruses (from BC, AB, ON, QC, NB & NU) are antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. (Figure 6)

**Figure 6. Influenza strain characterizations, Canada, 2011-2012, N = 532**



Note: The recommended components for the 2011-2012 Northern Hemisphere influenza vaccine include: A/Perth/16/2009 (H3N2), A/California/7/2009 (H1N1) and B/Brisbane/60/2008.



## Antiviral Resistance

Since the beginning of the season, NML has tested 520 influenza viruses for resistance to oseltamivir (by phenotypic assay and/or sequencing) and 517 influenza viruses for resistance to zanamivir (by phenotypic assay) and it was found that all viruses tested were susceptible to oseltamivir and zanamivir. A total of 282 influenza A viruses (166 H3N2 and 116 H1N1) were tested for amantadine resistance; all but one influenza A(H3N2) virus tested were resistant. (Table 3)

**Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2011-2012**

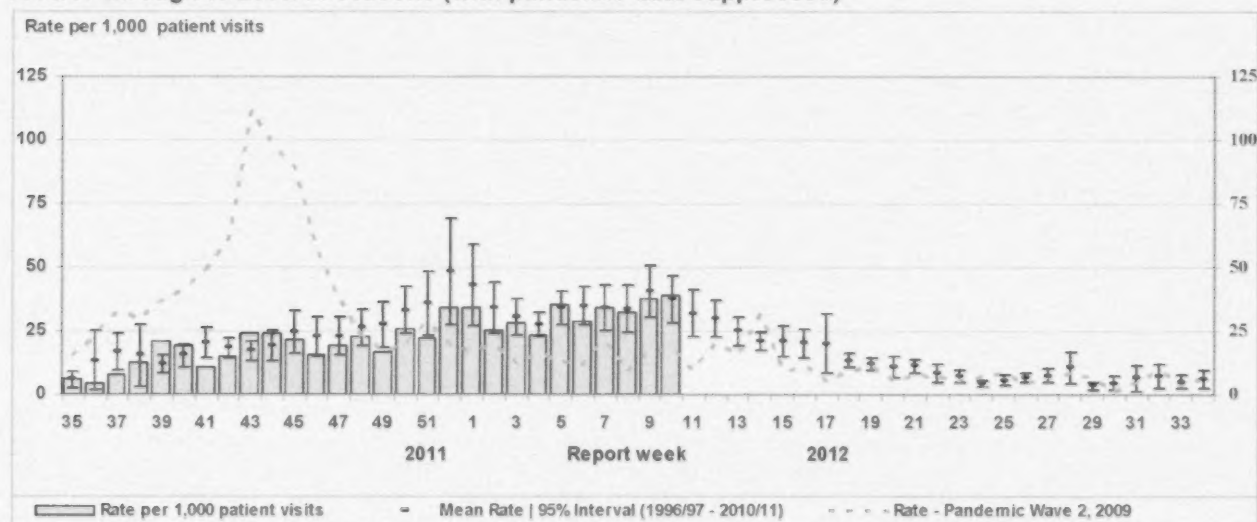
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	112	0	111	0	166	165(99.4%)
A (H1N1)	104	0	103	0	116	116 (100%)
B	304	0	303	0	NA*	NA*
<b>TOTAL</b>	<b>520</b>	<b>0</b>	<b>517</b>	<b>0</b>	<b>282</b>	<b>281 (99.6%)</b>

\* NA – not applicable

## Influenza-like Illness (ILI) Consultation Rate

The national ILI consultation rate was similar to the previous week (38.7 ILI consultations per 1,000 patient visits in week 10) and remains within the expected levels for this time of year (Figure 7). The highest consultation rates this week were observed in those 5 to 19 years old (93.2/1,000 visits) and children under 5 (45.8/1,000 visits).

**Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2011-2012 compared to 1996/97 through to 2010/11 seasons (with pandemic data suppressed)**



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

## Severe Illness Surveillance

### Paediatric Influenza Hospitalizations and Deaths

In week 10, 47 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network. Fifteen hospitalizations were due to influenza A (unsubtyped) (in ON, QC & NL); two were due to A(H1N1) (in AB & QC); one was due to A(H3N2) (in AB) and 29 were due to influenza B (in BC, MB, ON, QC, NS & NL).

To date this season, 230 influenza-associated paediatric hospitalizations have been reported through IMPACT (from BC, AB, SK, MB, ON, QC, NS & NL); 117 (50.9%) were due to influenza A and 113 (49.1%) were due to influenza B.

The proportion of cases by age group is as follows: 17.0% among infants <6 months of age; 20.0% among children 6-23 months of age; 28.3% were between 2-4 years; 23.0% were between 5-9 years; and 11.7% were between 10-16 years.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada; therefore, the number of hospitalizations included in this report may differ from those reported by other Provincial and Territorial Health Authorities.

### **Adult Influenza Hospitalizations and Deaths**

In week 10, 46 new laboratory-confirmed influenza-associated adult hospitalizations were reported: 9 in AB, 2 in MB, 29 in ON, 1 in NL, 4 in NS and 1 in NT. In addition, 7 adult influenza-associated deaths were reported this week in ON; 6 of the deaths were among those  $\geq 65$  years old; 5 of the deaths had influenza B infection.

To date this season, 281 influenza-associated adult hospitalizations have been reported from six provinces (AB, SK, MB, ON, NS, & NL) and one territory (NT). The proportion of cases by age group is as follows: 25.3% were in those 17-44 years of age; 26.3% were in those 45-64 years of age and 48.4% were in those  $\geq 65$  years. In addition, 14 adult influenza-associated deaths have been reported to date this season (13 in ON & 1 in MB); all but one were  $\geq 65$  years old.

Note: The reason for hospitalization or cause of death does not have to be attributable to influenza in order to be reported. Influenza-associated adult hospitalizations are not reported to PHAC by the following Provinces: BC, & QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

## **International Influenza Updates**

**WHO:** No new updates have been reported by the WHO since March 2, 2012.

*World Health Organization influenza update*

**PAHO:** In North America, influenza activity continued to increase in Canada and the United States as of week 9 but remains within the expected level for this time of year; however influenza activity continued to decline in Mexico. Influenza A(H3N2) remained predominant in Canada and the United States while influenza A(H1N1)pdm09 remained predominant in Mexico and has increased in the United States over recent weeks. In Central America and the Caribbean, influenza activity remained low or within expected levels for this period of time, except in Guatemala, where influenza A(H1N1)pdm09 has increased and has been co-circulating with influenza B in the last several weeks. In South America, influenza activity and acute respiratory illness activity remained low or within expected levels for this period of time.

*Pan American Health Organization influenza situation report*

**United States:** In week 9, the CDC reported that 21.3% (1,019/4,776) of influenza tests were positive of which 95% were for influenza A viruses and 5% for influenza B. Since October 1, 2011, the CDC characterized 612 influenza viruses: 217 A/H1N1, 407 A/H3N2 and 78 B. Of the 127 A/H1N1 viruses characterized, 125 (98.4%) were A/California/7/2009(H1N1)-like and 2 (1.6%) showed reduced titers with antiserum produced against A/California/7/2009. Of the 407 influenza A/H3N2 viruses that were characterized, 319 (78.4%) were A/Perth/16/2009-like and 88 (21.6%) showed reduced titers with antiserum produced against A/Perth/16/2009. Of the 78 influenza B viruses that were characterized, 36 (46.2%) were B/Brisbane/60/2008-like (B/Victoria lineage) and 42 (53.8%) belonged to the B/Yamagata lineage. The proportion of outpatient visits for ILI was 2.0%, which is below the national baseline. Widespread influenza activity was reported in 9 states (California, Colorado, Illinois, Kansas, Missouri, Nevada, New Jersey, Oklahoma and Virginia), 22 states reported regional influenza activity, 12 states reported localized influenza activity, while the rest reported either sporadic or no activity. One influenza-associated pediatric death was reported to CDC during week 9 and was associated with seasonal influenza A(H3) virus; five influenza associated-pediatric deaths have been reported this season to date.

*Centers for Disease Control and Prevention seasonal influenza report*

**Europe:** In week 10, most countries in the WHO European Region reported medium-intensity, regional or widespread influenza activity and stable or decreasing trends. Outpatient consultation rates for influenza-like illness (ILI) and acute respiratory infection (ARI) are low compared to the same period last year. Influenza A(H3N2) continues to be the dominant virus in circulation, with an increasing number of influenza B detections and relatively few A(H1N1)pdm09 reported. Of the 1,708 ILI/ARI samples tested in week 10, 723 (42.3%) tested positive for influenza, of which 83.7% were for influenza A and 16.3% for influenza B. Since week 40, 558 influenza viruses have been characterized antigenically: 14 were A/California/7/2009(H1N1)-like; 481 were A/Perth/16/2009(H1N1)-like; 5 were B/Florida/4/2006-like (B/Yamagata/16/88 lineage), 9 were B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage) and 49 were B/Brisbane/60/2008-like (B/Victoria/2/87 lineage).

*EuroFlu weekly electronic bulletin*

## Human Avian Influenza Updates

Since March 10, 2012, the WHO reported two new cases of human A/H5N1 avian influenza infection from Viet Nam and Indonesia. The case from Viet Nam is a 31-year old male from Dak Lak province who developed symptoms on February 29, 2012 and is currently still in hospital; the man was involved in the slaughter and consumption of sick poultry. The case from Indonesia was a 24-year old female from Bengkulu Province who developed symptoms on February 23, 2012, was hospitalized the following day, and died on March 1; investigations indicate she had exposure to a potentially contaminated environment where sudden deaths of poultry had recently occurred.

WHO Avian influenza situation updates

**FluWatch reports include data and information from the following sources:** laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

### ILI definition for the 2011-2012 season

**ILI in the general population:** Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

### Definitions of ILI/Influenza outbreaks for the 2011-2012 season

**Schools:** Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

**Hospitals and residential institutions:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

**Other settings:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. workplace, closed communities.

### Influenza Activity Levels Definition for the 2011-2012 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI\* and

(2) lab confirmed influenza detection(s) together with

(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI\* and

(2) lab confirmed influenza detection(s) together with

(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

\* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

*We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.*

This report is available on the Public Health Agency website at the following address: <http://www.phac-aspc.gc.ca/fluwatch/index.html>. Ce rapport est disponible dans les deux langues officielles. Pour en recevoir un exemplaire dans l'autre langue chaque semaine, veuillez communiquer avec Estelle Arseneault, Division de l'immunisation et des infections respiratoires au (613) 998-8862.